OWNER'S MANUAL

DIGITAL INVERTER GENERATOR

2000iN

4-STROKE ENGINE

PLEASE BE SURE TO READ THIS MANUAL BEFORE STARTING YOUR GENERATOR

PREFACE

- Thank you for purchasing a generator.
- This manual cover operation and maintenance of the generator.
- Reserves the right to make changes at anytime without notice and without taking any obligation. This publication can't be reproduced without written permission.
- Pay special attention to the following works:
- If a problem should arises or if you have any questions about them, consult an authorized dealer.

⚠ WARNING

Generator is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

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1、Introduction

Your new ERMA product will more than satisfy your expectations. It has been manufactured under stringent ERMA Quality Standards to meet superior performance criteria. You will find your new ERMA item easy and safe to operate, and, with proper care, it will give you many years of dependable service. CAUTION. Carefully read through this entire Instruction Manual before using your new ERMA product. Take special care to heed the Cautions and Warnings. Your ERMA product has many features that will make your job faster and easier. Safety, performance, and dependability have been given top priority in the development of product, making it easy to maintain and operate.

2、Environmental protection

Recycle unwanted materials instead of disposing of them as waste. All tools, hoses and packaging should be sorted, taken to the local recycling center and disposed of in an environmentally safe way.

3、Scope of product

This product is suited for home and camping applications. It will allow you to run equipment like outdoor lights, computers, sound systems, televisions, DVD and Video players, microwaves and allows you to recharge your car battery. When in use it is highly recommended to have a surge protector connected to the generator at all times.

4、Description of symbols

The rating plate on your tool may show symbols. These represent important information about the Product or instructions on its use.

Wear hearing protection.

Wear eye protection.

Wear breathing protection.

5、Specifications

Dimensions and weight

Length × width × height	540×320×455
Dry weight	23 kg

Engine

Model	EM158F
Engine	4-stroke, overhead valve, single cylinder
Displacement(Bore × Stroke)	105.6mml (58X40mm)
Compression ratio	8.5: 1
Engine speed	4500rpm (With SMART throttle switch OFF)
Cooling system	Forced air
Ignition system	Full transistor
Oil capacity	0.40L
Fuel tank capacity	3.2L

Generator

Model		EM2000iN				
AC output	Rated voltage (V)	220	230	240	110	120
	Rated Frequency (Hz)	50			60	
	Rated ampere (A)	7.3	6.9	6.7	14.5	13.3
	Rated output (KVA)	1.6				
	Max output (KVA)	1.8				
DC output		Only for charging 12V automotive batteries. Maximum charging output: 8.3A(for CE 50Hz)				
		Only for charging 12V automotive batteries. Maximum charging output: 5 A(for CETL 60Hz)				

6、General safety instructions for power tools

To use this product properly, you must observe the safety regulations, the assembly instructions and the operating instructions to be found in this Manual. All persons who use and service the machine have to be acquainted with this Manual and must be informed about its potential hazards. Children and infirm people must not use this tool. Children should be supervised at all times if they are in the area in which the tool is being used. It is also imperative that you observe the accident prevention regulations in force in your area. The same applies for general rules of occupational health and safety.

WARNING. When using power tools and generators, basic safety precautions should always be taken to reduce the risk of fire, electric shock and personal injury. Also, please read and heed the advice given in the additional important safety instructions.

1. Keep the work area clean and tidy. Cluttered work areas and benches invite accidents and injury.
2. Consider the environment in which you are working. Do not use power tools and generators in damp or wet locations. Keep the work area well lit. Do not expose power tools or generators to rain. Do not use power tools in the presence of flammable liquids or gases.
3. Keep visitors away from the work area. All visitors and onlookers, especially children and infirm persons, should be kept well away from where you are working. Do not let others in the vicinity make contact with the device(s) or extension cord.
4. Store generators and tools safely. When not in use, tools should be locked up out of reach.
5. Do not force the tool. The tool will do the job better and safer working at the rate for which it was designed.
6. Use the correct tool for the job. Do not force small tools or attachments to do the job best handled by a heavier duty tool. Never use a tool for a purpose for which it was not intended.
7. Dress correctly. Do not wear loose clothing or jeweler. They can be caught in moving parts. Rubber gloves and non-slip footwear are recommended when working outdoors. If you have long hair, wear a protective hair covering.
8. Use safety accessories. Safety glasses and earmuffs should always be worn. A face or dust mask is also required if the application creates dust.

9. Secure the work piece. Use clamps or a vice to hold the work piece. It is safer than using your hand and frees both hands to operate the tool.

10. Do not overreach. Keep your footing secure and balanced at all times.

11. Look after your tools. Keep tools sharp and clean for better and safer performance. Follow the instructions regarding lubrication and accessory changes. Inspect cords periodically and, if damaged, have them repaired by an authorized service facility. Inspect extension cords periodically and replace them if damaged. Keep tool handles dry, clean and free from oil and grease.

12. Remove adjusting keys and wrenches. Check to see that keys and adjusting wrenches are removed from the tool before switching on.

13. Stay alert. Watch what you are doing. Use common sense. Do not operate a tool when you are tired.

14. Check for damaged parts. Before using a tool, check that there are no damaged parts. If a part is slightly damaged, carefully determine if it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, proper mounting and any other conditions that may affect the operation of the tool. A part that is damaged should be properly repaired or replaced by an authorized service facility, unless otherwise indicated in this Instruction Manual.

15. Use only approved parts. When servicing, use only identical replacement parts. Use an authorized service facility to fit replacement parts.

WARNING. The use of an accessory or attachment, other than those recommended in this Instruction Manual, may present a risk of personal injury.

Save these important safety instructions

7、Risk of electrocution and fire		
Hazard	What could happen	How to prevent it
Improper storage of extension cord.	Extension cord can come into contact with hot engine parts resulting in damage. Using a damaged extension cord can result in electrocution or death.	Remove extension cord from the generator and store separately away from generator.
Operation of generator in rain, wet, icy, or flooded conditions.	Water is an excellent conductor of electricity! Water, which comes in contact with electrically, charged components could transmit electricity to the frame and other surfaces, resulting in electrical shock to anyone contacting them.	Operate generator in a clean, dry, well-ventilated area. Make sure hands are dry before touching unit.
Placing generator on or against highly conductive surface, such as a steel walkway or metal roof.	Accidental leakage of electrical current could charge conductive surfaces in contact with the generator.	Place generator on low conductivity surface such as a concrete slab. ALWAYS operate generator a minimum of 2 meters from any conductive surface.
Use of worn, damaged or ungrounded extension cords.	Contact with worn or damaged extension cords could result in electrocution. Use of ungrounded corsets could prevent operation of circuit breakers and result in electrical shock.	Inspect extension cords before use and replace with new cord if required. Always use a corset having a grounding wire with an appropriate grounding plug. DO NOT use an ungrounded plug.
Operation of unit when damaged, or with guards or panels removed.	Attempting to use the unit when it has been damaged, or when it is not functioning normally could result in fire or electrocution. Removal of guarding could expose electrically charged components and result in electrocution.	Do not operate generator with mechanical or electrical problem. Have unit repaired by an Authorized Service Center .Do not operate generator with protective guarding removed.

8、Risk of fire		
Hazard	What could happen	How to prevent it
Attempting to fill the fuel tank while the engine is running.	Coming in contact can ignite fuel and fuel vapors with hot components such as the muffler, engine exhaust gases, or from an electrical spark.	Turn engine off and allow it to cool before adding fuel to the tank. Equip area of operation with a fire extinguisher certified to handle gasoline or fuel fires.
Sparks, fire, hot objects	Cigarettes, sparks, fires, or other hot objects can cause fuel or fuel vapors to ignite.	Add fuel to tank in well-ventilated area. Make sure there are no sources of ignition near the generator.
Improper storage of fuel	Improperly stored fuel could lead to accidental ignition. Fuel improperly secured could get into the hands of children or other unqualified persons.	Store fuel in an approved container designed to hold fuel. Store container in secure location to prevent use by other's
Tampering with factory set engine speed settings.	Engine speed has been factory set to provide safe operation. Tampering with the engine speed adjustment could result in overheating of attachments and could cause a fire.	Never attempt to "speed-up" the engine to obtain more performance. The output of this generator is electronically controlled and speeding up the generator will have no effect on the electrical output.
Inadequate ventilation for generator	Materials placed against or near the generator or operating the generator in areas where the temperature exceeds 40°C. Ambient (such as storage rooms or garages) can interfere with its proper ventilation features causing overheating and possible ignition of the materials or buildings.	Operate generator in a clean, dry, well-ventilated area. Do not operate unit indoors or in any confined area.
Overfilling the fuel tank – fuel spillage.	Spilled fuel and its vapors can become ignited from hot surfaces or sparks.	Use care in filling the tank to avoid spilling fuel. Make sure fuel cap is secured tightly and check engine for fuel leaks before starting engine. Move generator away from refueling area or any spillage before starting engine. Allow for fuel expansion. Never refuel with the engine running.

9、Risk of injury and property damage when transporting generator		
Hazard	What could happen	How to prevent it
Fire, inhalation, damage to vehicle surfaces	Fuel or oil can leak or spill and could result in fire or breathing hazard, serious injury or death can result. Fuel or oil leaks can damage carpet, paint or other surfaces in vehicles or trailers.	The generator is equipped with a fuel drain screw; adjust the screw to the off position before transporting to avoid fuel leaks. Also make sure that the fuel cap breather switch is located on the off (closed) position, failure to do this may result in a fuel leakage during transporting. Transport spare fuel only in an approved fuel container. Always place generator on a protective mat when transporting to protect against damage to vehicle from leaks. Remove generator from vehicle immediately upon arrival at your destination.

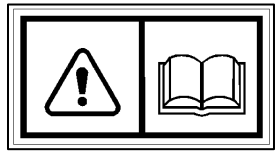
10、Risk from lifting		
Hazard	What could happen	How to prevent it
Lifting a very heavy object.	Serious injury can result from attempting to lift too heavy an object.	When lifting, always keep the object you are lifting near the vertical axis of your body. DO NOT use you back to lift heavy loads. Crouch down, grab the top handle of unit and use your legs to carry the weight. Keep the object as near the center of your body's gravity as possible. Avoid twisting your body when carrying the unit; instead, turn your whole body using your feet.

11、Risk of unsafe operation		
Hazard	What could happen	How to prevent it
Operation of generator in careless manner.	All sources of energy include the potential for injury. Unsafe operation or maintenance of your generator could lead to serious injury or death to you or others.	Review and understand all of the operating instructions and warnings in this manual. Become familiar with the operation and controls of the generator. Know-how to shut it off quickly. Equip area of operation with a fire extinguisher certified to handle gasoline or fuel fires Keep children or others away from the generator at all times.
Operation of the generator in the presence of explosive or dangerous gasses.	Operation on the generator in such an environment may result in causing a fire or explosion from the generator or connected appliances.	Never operate the generator in conditions where explosive gases or chemicals may be present. This includes, boats, pits and any area where ventilation of fresh air is not available.
Operating generator while suspended.	Generator will not operate properly and will cause damage to the generator and could cause serious injury or death to you or others.	Never operate generator while suspended or in an unleveled position. Always operate generate on a flat, level surface.

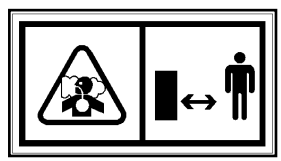
12、Risk of breathing – inhalation hazard		
Hazard	What could happen	How to prevent it
Gasoline engines produce toxic carbon monoxide exhaust fumes.	Breathing exhaust fumes will cause serious injury or death.	Operate generator in clean, dry, well-ventilated area. Never operate unit in enclosed areas such as garages, basements, storage, sheds, or in any location occupied by humans or animals. Keep children, pets and others away from area of operating unit.

13、Risk of moving parts		
Hazard	What could happen	How to prevent it
Contact with moving parts can result in serious injury.	The generator contains parts, which rotate at high speed during operation. Guarding to prevent injury covers these parts.	Never operate generator with guarding or cover plates removed. Avoid wearing loose fitting clothing or jeweler, which could be caught by moving parts.

14、Additional safety rules for generator

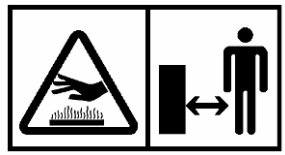


- ERMA generator is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.



- Exhaust gas contains poisonous carbon monoxide. Never run the generator in an enclosed area. Be sure to provide adequate ventilation. When installed in ventilated protections are to be observed.

- Stop the engine before refueling
- Gasoline is extremely flammable and explosive under certain Conditions Refuel in a ventilated area.
- Keep away from cigarette, smoke and sparks when refueling. Always refuel in a well-ventilated location.
- Wipe up spilled gasoline at once



- The muffler becomes very hot during operation and remains hot for a while after stopping the engine
  Be careful not to touch the muffler while it is hot.
  Let the engine cool before storing the generator indoors.
  The engine exhaust system will be heated during operation and remain hot immediately after stopping the engine.
  To prevent scalding, pay attention to the warning marks attached to the generator.

- Connections for standby power to a building's electrical system must be made by a qualified electrician and must comply with all applicable laws and electrical codes. Improper connections can allow electrical current from the generator to back feed into the utility lines. Such back feed may electrocute utility company workers or others who contact the lines during a power outage, and when utility power is restored, the generator may explode, burn, or cause fires in the building's electrical system.

⚠ WARNING

- Always make a pre-operation inspection before you start the engine. You may prevent accident or equipment damage.
- Place the generator at least 1m(3ft) away from buildings or other equipment during operation.
- Operate the generator on a level surface. If the generator is tiled, fuel spillage may result.
- Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instructions.
- Keep children and pets away from the generator when it is in operation.
- Keep away from rotating parts while the generator is running.

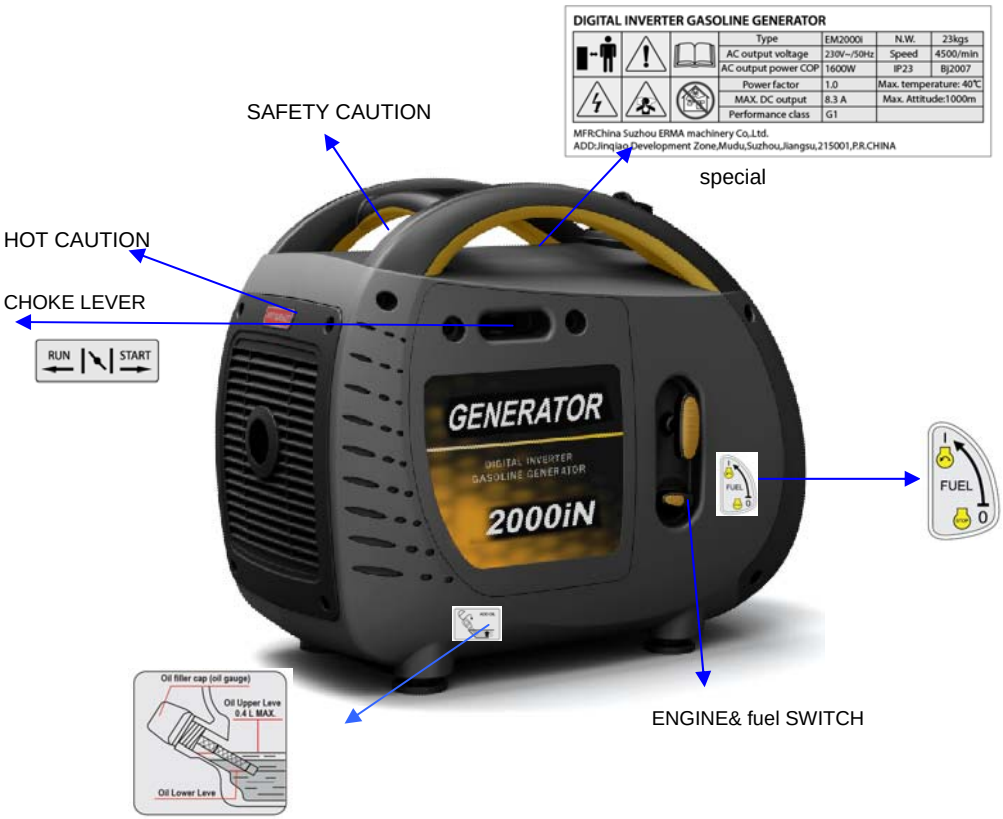
  Keep away from cigarette, smoke and sparks when refueling the generator.
- Always refuel in a well-ventilated location.
- Gasoline is extremely flammable and explosive under certain condition.
- Refuel in a well-ventilated area with the engine stopped.
- Wipe up spilled gasoline at once.
- The generator is a potential source of electrical shocks when misused; do not operate with wet hands.
- Do not operate the generator in rain or snow and do not let it get wet.

  You MUST unplug any load from the generator before starting and stopping to prevent permanent damage to any appliances.
- The installation and major repair work shall be carried out only by specifically trained personnel.
- Engine exhaust gases are toxic. The generator set is only used outdoors.
- protection against electrical shock depends on circuit breakers specially matched to the generating set. The circuit breakers must be replaced with the one having idential ratings and performance characteristics.
- Due to high mechanical stresses only tough rubber sheathed flexible cable or the equivalent should be used.
- when using extension lines or mobile distribution networks the total length of lines for a cross section of 1.5mm2 should not exceed 60m;for a cross section of 2.5mm2 this should not exceed 100m.

15、Unpacking

Due to modern mass production techniques, it is unlikely that your ERMA Power Tool is faulty or that a part is missing. If you find anything wrong, do not operate the tool until the parts have been replaced or the fault has been rectified. Failure to do so could result in serious personal injury.

16、SAFETY LABEL LOCATIONS

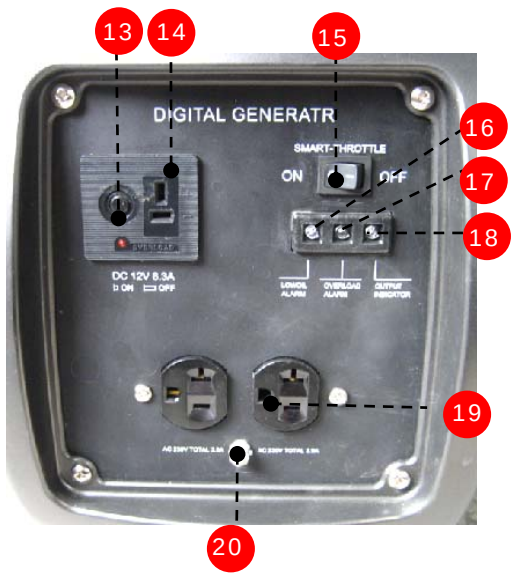


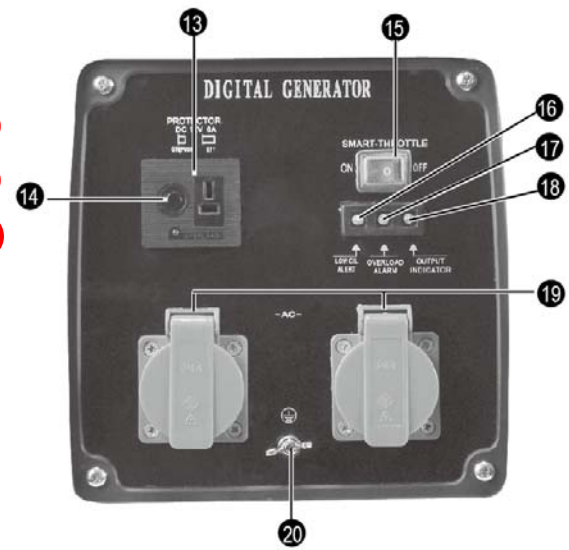
1.Read the operator's instruction manual.
2.Attention!Exhaust gases are toxic.Do not operate the generator in a room without ventilation system!
3.Children should be protected by keeping them at a safe distance from the generator set!
4.Refilling of the generating sets are not allowed during the operation!
5.If the generator will be mounted in a closed room,relevant safety regulations against fire and explosion should be followed!
6.Do not connect to household circuit!
7.Do not use in wet condition!
8.Keep in flammable away!
9.When refuelling:stop engine,no somking,do not spill!
GENERATOR
DIGITAL INVERTER
GASOLINE GENERATOR
2000iN

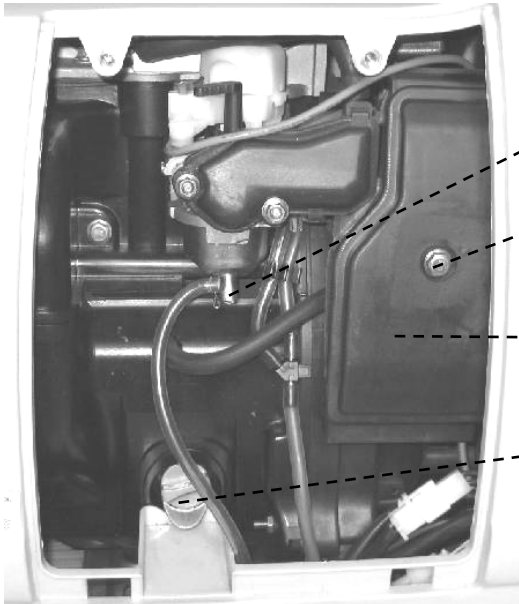
17、Know your product

(1) CONTROL PANEL
(2) FUEL TANK CAP
(3) MAINTENANCE COVER SCREW
(4) CHOKE LEVER
(5) FRONT SIDE MAINTENANCE COVER
(6) STARTER GRIP
(7) ENGINE SWITCH
(8) Muffler-cover
(9) FUEL DRAIN HOSE
(10) AC SOCKET

(11) SPARK PLUG MAINTENANCE COVER
(12) MUFFLER
(13) DC CIRCUIT PROTECTOR
(14) DC SOCKET
(15) SMART THROTTLE SWITCH
(16) OIL ALERT INDICATOR LIGHT
(17) OVERLOAD INDICATOR LIGHT
(18) OUTPUT INDICATOR LIGHT
(19) AC SOCKET
(20) EARTH





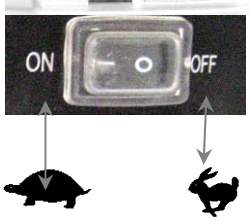


(21) FUEL DRAIN SCREW

(22)AIR CLEANER SCREW

(23)AIR CLEANER COVER

(24) OIL FILLER CAP



Engine speed is kept at idle automatically when the electrical appliance is disconnected and it returns to the proper speed to power of the electrical load when electrical appliance is connected. This position is recommended to minimize the fuel consumption while in operation.

NOTE. OFF: Smart throttle system does not operate. Engine speed is kept over rated speed.

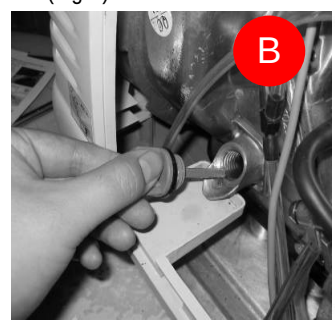
- Smart throttle system does not operate effectively if the electrical appliance requires the momentary electric power.
- When high electrical loads are connected simultaneously, turn the smart throttle switch to the OFF position to reduce voltage change.
- In DC operation, turn the smart throttle switch to the OFF position.

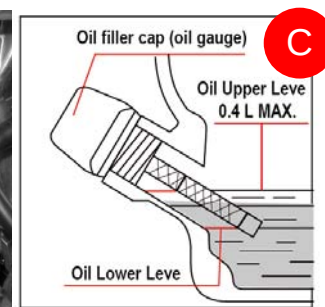
18、Pre-operation check

Be sure to check the generator on a level surface with the engine doesn't work.

⚠CAUTION ① Check the engine oil level.

1. Loosen the 2-maintenance cover screw (3) and remove the front side maintenance cover. (Fig.A)





2. Remove the oil filler cap by rotating the cap anti-clockwise and inspect to see the oil level (Fig.B).

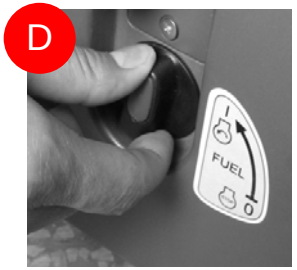
3. If the oil level is below the top of the oil tank housing neck refill with either SAE30 (single viscosity)4stroke all the way to the top of the oil tank neck (refer to the "Engine oil filling/replacement" section of this instruction manual)(Fig.C).

NOTE. Completely remove the oil filler cap when checking oil level. The oil cap is not required for checking oil level.

4. If the oil is contaminated or has discolored, ensure you change the oil. Refer to the 'Engine oil replacement' section for instructions.

② Check the fuel level.

1. Make sure the generator is turned off, by rotating the engine switch (7) to the ‘off’ position (Fig.D).



2. Check the fuel by a visual check. Remove the fuel cap and fuel filter screen reviewing the fuel level (Fig.E).

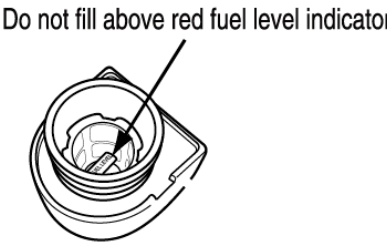
3. If fuel is low, replace the filter screen inside the fuel tank neck (Fig.F.).

4.Pour in unleaded fuel from an approved fuel container into the fuel tank.

Because fuel expands, only fill the unit to the base of the filter housing.

Do not fill above red fuel level indicator

Replace fuel cap and turn clockwise to lock.



WARNING

- Do not refill tank while engine is running or is hot.
- Check to ensure that the fuel drain screw has been tightened and that fuel is not leaking from the rear outlet tube.

Note. If the fuel drain screw (21) is not tight fuel will be visibly leaking from the fuel drain hose (8).

- Be careful not to admit dust, dirt, water or other foreign objects into the fuel.
- Wipe off spilt fuel thoroughly before starting engine.
- Ensure you DO NOT fuel the generator in close proximity to any open flames

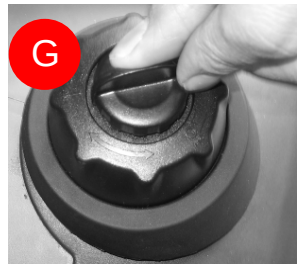
19、Starting the engine

WARNING Before starting the engine, ensure you have filled the crankcase to the correct level with oil.

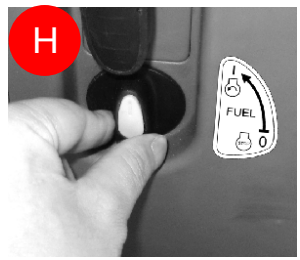
Note. The crankcase is not filled with oil from the factory.

1. Before starting, ensure that no electrical apparatus has been connected to the generator.

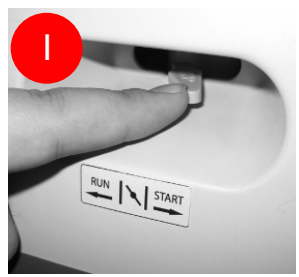
2. Turn the fuel cap vent lever to the on position (Fig.G.).



3. Turn the engine switch to the on position (Fig.H).



4. To start a cold engine move the choke lever to the start position. In order to restart a warm engine, leave the choke lever in the run position (Fig.I).



5. Slowly pull the recoil starter until you feel it engage and then pull it briskly. Return the recoil starter gently and slowly to the original position by hand (Fig.J).

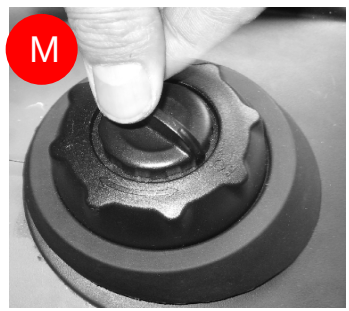
Note. When the motor is started for the very first time, it will require a number of attempts to start until the fuel has traveled from the tank to the motor.

6. If the choke lever was on the start position gradually move it to the run position as the engine warms up (Fig.K).

20、Stop the engine

1. Before stopping, ensure that no electrical apparatus is connected to the generator.
2. Turn the engine switch (7) to the ‘off’ position (Fig.L).

3. Turn the fuel (2) vent lever to the ‘off’ position (Fig.M).



Connecting apparatus to the generator

Please note that it is not recommended to run the unit over its max output of 1800W for more than a maximum of 20 minutes.

21、AC Applications

1. Start the engine. Make sure the green output indicator light (18) comes on (it may take up to 3 seconds). Allow the motor to run for a couple of minutes to warm up prior to connecting any apparatus to the generator.
2. Ensure the apparatus/appliance switch is turned OFF. Then plug the power cord into the AC output socket (19) on the generator.

Note. Before connecting an apparatus/appliance make sure that.

• The apparatus/appliance is in good working order. Faulty appliances or power cords can create a potential electrical shock.

• It is highly recommended to have a surge protector connected to the generator at all times.

• Check to make sure that the apparatus/appliance does not exceed that of the generator. Never exceed the maximum power rating of the generator.

3. Switch the AC Smart Throttle System (15) if required to the 'ON' position (Fig.N)

Note.

Smart Throttle:

• The Smart Throttle System does not operate effectively if the electrical appliance requires the momentary electric power.

• When operating high electrical loads simultaneously turn the Smart Throttle System switch to the OFF position to reduce voltage change.

Overload Indicator

• When the generator has an output required that exceeds it's output an overload indicator light (17) will glow, providing a warning before cutting the engine out 20 seconds later.

CAUTION.

• Ensure the electric apparatus is turned off before plugging in.

• Check to ensure that the total load is within the generator rated output.

WARNING. Prior to connecting any appliance to the generator, check the rating label of the appliance. The generator is rated at 1600W so if the appliance being connected is higher than 1600W, the protective cut out may switch the generator off to prevent over load damage to the generator. The generator will withstand short operation up to 1800W for a maximum of 20 minutes.

Note. Motorized products will require more energy upon start up and products, which are rated below 1600W, may not start if the starting current is excessive, this is not due to a performance fault of the generator.

22、DC Applications

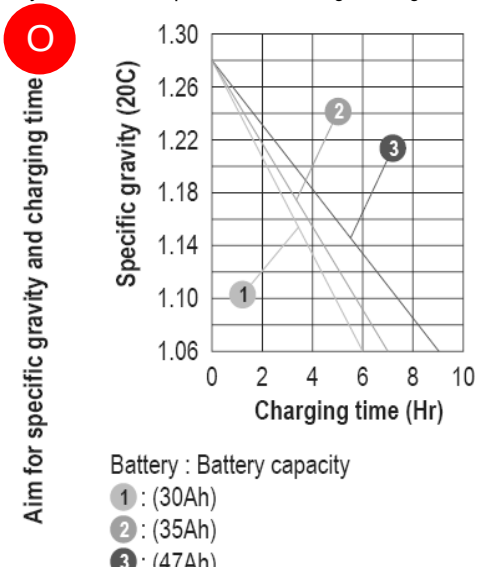
The DC output should only be used for recharging 12-volt automotive lead acid type batteries, and do not charge batteries while they are connected to a vehicle. Make sure they have been totally disconnected prior to connecting to the generator for recharging.

Note. Only use the DC leads provided with this generator, when using the DC output.

When charging a battery the following instructions need to be followed:

1. Disconnect the original leads from the battery.
2. Fully loosen the battery fluid filler caps.
3. Fill the battery cells with distilled water to the upper limit if the battery is empty.
4. Measure the specific gravity fluid by using a hydrometer and calculate the charging time in accordance with the table shown (Fig.O).

O

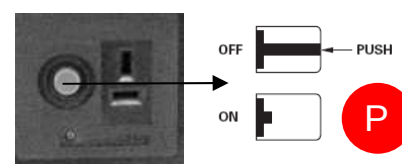


Battery : Battery capacity
1 : (30Ah)
2 : (35Ah)
3 : (47Ah)

5. For a fully charged battery, the specific gravity range shall be within 1.26 to 1.28. It is recommended to be checked and confirmed every hour.
6. Start the generator. Make sure the green output indicator light (18) comes on. Allow the motor to run for a couple of minutes to warm up prior to connecting any apparatus to the generator.
7. Review the status of the Smart Throttle System selector button (15); make sure it is set accordingly to your needs. The Smart throttle system can be either set to “On” or “Off”. In the “On” position, the charging current will be low compared to if the switch was set to the “Off” position.

Note: Do not let the two clips of the DC cable ever short together. Take extra care to connect the Red to the positive of the battery and the black to the negative of the battery. NEVER use any cable other than the one supplied with this generator. When removing the plug from the generator DO NOT place the plug on the ground, or on any other surface until the clips are removed from the battery.

8. Connect the supplied DC plug lead into the DC socket (14) and connect the alligator clips to the correct polarity. Only use the DC cable provided with this generator.
9. Press the DC Circuit protector/reset button (13) to reset in case the DC supply had previously been overloaded. (Fig.P).



The generator will charge a wide variety of automotive lead acid batteries, providing the battery is in reasonable condition.

Note. This usage is applicable for charging only 12V lead acid automotive batteries. Only use the DC socket to charge lead acid type batteries. DO NOT charge Nicad or any other type of batteries.

Correct use of batteries.

WARNING. •batteries and electrolytes should keep away from children

- The battery gives off explosive gases; keep sparks, flames and cigarettes away.
- Provide adequate ventilation when charging or using batteries in an enclosed space.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns.

  Wear protective clothing and a face shield.

• If electrolyte gets on your skin, flush with water.

• If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.

• Electrolyte is poisonous. If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.

• To prevent the possibility of creating a spark near the battery, connect charging cables first to the battery, then to the generator. Disconnect cables first at the generator.

Note. Never leave the DC plug in the generator when not using the DC for charging batteries. Always remove the DC plug from the socket. In most cases it is acceptable to use both the 12V DC for battery charging and the AC 240V outlet at the same time. However, when the generator is working close to the maximum load, the generator may go into over load where the AC load will need to be reduced or disconnected

23、Generator maintenance

Your generator should be kept clean and dry at all times. The generator should not be stored or operated in an environment that includes excessive moisture, dust or any corrosive vapors. If these substances are on the generator, clean with a cloth or soft bristle brush. Do not use a garden hose or anything with water pressure to clean the generator. Water may enter the cooling air slots and could possibly damage the rotor, stator and the internal windings of the generator head

24、Storage/ Transportation

To prevent fuel spillage when transporting or during temporary storage, the generator

should be secured upright in its normal operating position, with the engine switch OFF.

The fuel cap vent lever is turned counterclockwise to the OFF position.

Allow the engine to cool well before turning the fuel cap vent lever to the OFF position.

When transporting the generator:

WARNING.

■Do not overfill the tank (there should be no fuel in the filler neck).

■Do not operate the generator while it is on a vehicle. Take the generator off the vehicle and use it in a well ventilated place.

■Avoid a place exposed to direct sunlight when putting the generator on avehicle. If the generator is left in an enclosed vehicle for many hours, high temperature inside the vehicle could cause fuel to vaporize resulting in a possible explosion.

■Do not drive on a rough road for an extended period with the generator on board. If you must transport the generator on board. If you must transport the generator on a rough road, drain the fuel from the generator beforehand.

Before storing the unit for an extended period:

1. Be sure the storage area is free of excessive humidity and dust.

2. Drain the fuel.

WARNING.

Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in the area.

a. Drain all gasoline from the fuel tank into an approved gasoline container.

b. Turn the engine switch ON, and loosen the carburetor drain screw and drain the gasoline from the carburetor into a suitable container. (Fig.Q).

c. Remove the spark plug maintenance cover.then Remove the spark plug cap.

d. Pull the starter grip 3 to 4 times to drain the gasoline from the fuel pump into a suitable container.

e.Turn the engine switch to the OFF position.

f.Tighten the carburetor drain screw.

g. Reinstall the spark plug cap on the spark plug securely.

3. Change the engine oil .

4. Remove the spark plug and pour about a tablespoon of clean engine oil into thecylinder. Crank the engine several revolutions to distribute the oil, then reinstall thespark plug.

5. Slowly pull the starter grip until resistance is felt. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. Storing the engine in this position will help to protect it from internal corrosion. (Fig.R).

25、Maintenance schedule

Item	Remarks	Each use	First month or 10Hrs	Every 3 months or 50Hrs	Every 6 months or 100Hrs	Every Year or 300Hrs
Engine oil	Check	●				
	Change		●		●	
Air cleaner	Check	●				
	Clean			●(2)		
Spark plug	Clean-adjust				●	
Spark arrester	Clean				●	
Fuel sediment cup	Clean				●	
Valve clearance	Check-adjust					●(3)
Fuel tank & strainer	Clean					●(3)
Fuel line	Check					

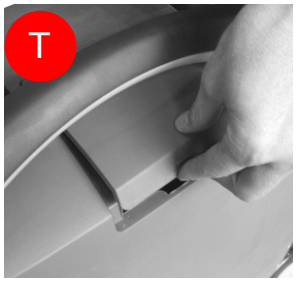
NOTE: (1) Service more frequently when used in dusty areas.

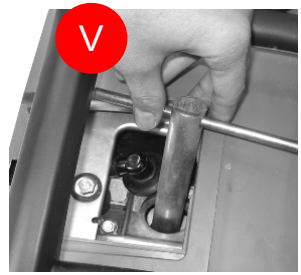
(2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to shop manual for service procedures.

(3) For commercial use, log hours of operation to determine proper maintenance intervals.

26、Spark plugs

1. Remove spark plug maintenance cover (11) from the generator housing (FigT).





2. Remove the spark plug lead (Fig.U).

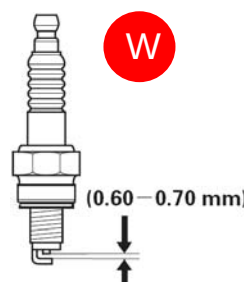
3. Remove any dirt from around the spark plug base.

4. With the spark plug wrench provided remove the spark plug (Fig.V).

5. Visually inspect the spark plug. Remove carbon deposits using a wire brush.

6. Check for discoloration on the top of the spark plug. The standard colour should be a tan colour.

7. Check the spark plug gap. The acceptable gap should be between 0.6–0.7mm(Fig.W).



8. Install/reinstall the spark plug carefully by hand.

9. Once the spark pug has been seated tighten with the spark plug wrench.

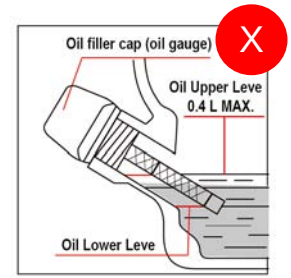
10. Reinstall the spark plug cap on top of the spark plug.

11. Reinstall the spark plug maintenance cover (11), and Reinstall handle.

The recommended spark plugs are as follows: NGK CR7HSA

27、Engine oil replacement

1. Place the generator on a level surface and warm up the engine for several minutes. Then stop the engine.
2. Loosen the side maintenance cover screw (3) and remove the side maintenance cover.
3. Remove the oil filler cap (24).
4. Drain dirty oil into a container thoroughly by tilting the engine toward the oil filler neck.
5. Once emptied, tilt the generator back up and place into the generator up right position.
6. Refill with recommended oil. Fill to the upper limit of the filler neck (Fig.X).



Note. The recommended 4 stroke engine oils are either SAE30 (single viscosity) or 10W30 (multi viscosity) 4 stroke oil.

CAUTION. Check that no foreign material, debris, dust enters the crankcase.

7. Reinstall the oil filler cap (23).
8. Reinstall the side maintenance cover (5) and tighten the cover screw (3).

Correct disposal of residual fluids.

NOTE. Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

28、Air filter

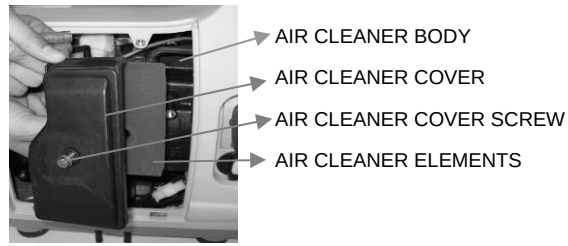
It is very important to maintain an air filter in proper condition.

Damage to the generator may arise if the filter has:

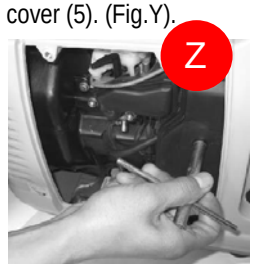
• Improperly been serviced (3).

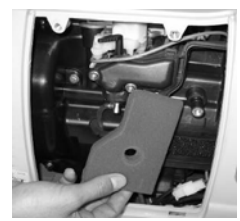
• Dirt and other foreign elements adhering to the filter due to improper installation and engine wear.

ALWAYS keep the filter clean at all times.



1. Remove the side maintenance cover (5). (Fig.Y).





2. Remove the air cleaner filter cover by firstly pushing down on the tab on the top of the air cleaner housing (Fig. V). Once the air cleaner filter cover tab has been released out of the filter housing, continue to detach the air filter cover housing by raising the air filter housing cover up and detaching it form the bottom tab.(Fig.Z).

3. Now that the air filter housing cover has been removed, proceed to remove the air filter by pulling it out towards you.

4. Wash the air filter in solvent or kerosene and allow to dry.

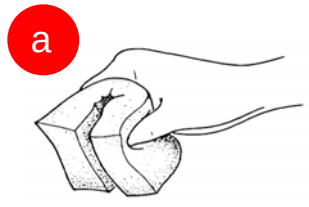
5. Lubricate the filter using clean motor oil.

6. Thoroughly squeeze the filter removing excess oil. (Fig.a).

7. Replace air filter back into the engine.

8. Reinstall the air cleaner cover.

9. Secure the maintenance cover (5) back onto the side panel of the generator, and tighten the cover screw securely (3).



IMPORTANT. Never run the engine without the air filter element in place.

29、SPARK ARRESTER MAINTENANCE(Equipped type only)

In a dry or wooded area, it is recommendable to use the product with a spark arrester. Some areas require the use of a spark arrester. Please check your local laws and regulations before operating your product.

The spark arrester must be cleaned regularly to keep it functioning as designed.

A clogged spark arrester :

- Prevents the flow of exhaust gas
- Reduces engine output
- Increases fuel consumption
- Makes starting difficult

If the engine has been running, the muffler and the spark arrester will be very hot. Allow the muffler to cool before cleaning the spark arrester.

How to remove the spark arrester

1. Remove 4 bolts from the muffler cover and

remove the muffler cover (Fig.b), (Fig.d).

2. Remove the special screw from the spark arrester

and remove the spark arrester from the muffler.

Clean the spark arrester screen (Fig.e).

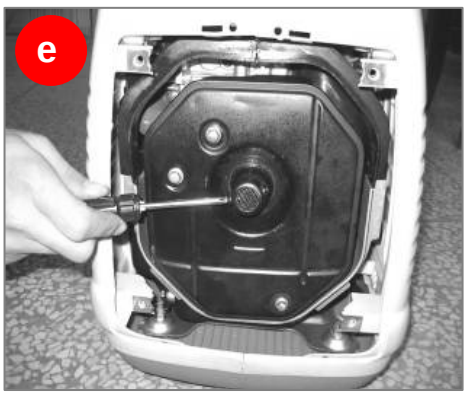
Use a brush to remove carbon deposits from the spark arrester screen.

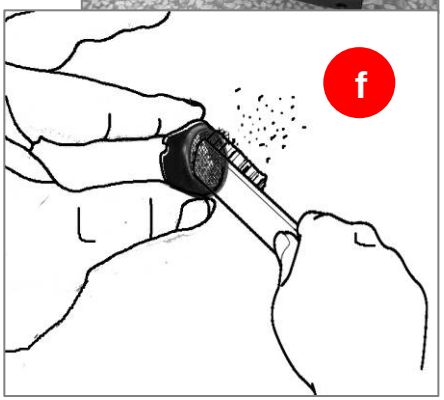
Be careful to avoid damaging the screen. (Fig.f).

The spark arrester must be free of breaks and holes.

Replace the spark arrester if it is damaged.

Install the spark arrester, and muffler protector in the reverse order of disassembly.





30、Cleaning

1. Keep your machine clean. The outside of the machine can be cleaned using a damp soft cloth with a mild detergent if required. Never use water to clean the generator as it may cause damage to internal parts.
2. Some maintenance products and solvents may damage the plastic parts; these include products containing benzene, trichloroethylene, chloride and ammonia.
3. Use a vacuum to clean air inlet and outlet louvers of the alternator.
4. Take special care to keep the ventilation inlets/outlets free from obstruction; cleaning with a soft brush followed by a compressed air jet will usually be sufficient to ensure acceptable internal cleanliness.
5. Wear eye protection when carrying out cleaning.

31、Repairs

Only an authorised service centre should repair the generator.

CAUTION. Do not use cleaning agents to clean the plastic parts of the tool. A mild detergent on a damp cloth is recommended.

32、General inspection

Regularly check that all the fixing screws are tight. They may vibrate loose over time.

33、Troubleshooting		
Trouble	Possible cause	Suggested remedy
Engine will not start	1. Low on fuel or oil content	1. Add fuel or oil
	2. Ignition switch in “Off” position	2. Turn to “ON” position
	3. Faulty spark plug	3. Replace spark plug
	4. Choke in wrong position	4. Adjust choke accordingly
	5. Unit loaded during start-up	5. Remove load from unit
	6. Spark plug lead loose/disconnected	6. Disconnect the spark plug lead and reattach spark plug lead.
	7. Unit may be flooded	7. Leave the generator rest for 5-10 minutes and then try again, following the instructions when doing so. Alternatively if the choke lever is in full choke position (start), switch the choke to the run position and try to restart.
	8. Old Fuel	8. Remove the existing fuel and replace with new.
AC power supply - No electrical output	1. Faulty receptacle	1. Have service center replace receptacle
	2. Is the green LED on with motor running and no output?	2. YES - Try another appliance that is known to work. Reduce the load if required. NO-Organize for the unit to be serviced.
	3. Check to make sure the red overload LED is not on?	3. If it is - reduce the load.
	4. Faulty power cord	4. Replace cord
DC power supply - No electrical output	1. Circuit breaker kicked out (DC only)	1. Yes – Depress the reset button, to rest the circuit breaker

Troubleshooting cont.		
Generator running rough	1. Has the choke been elevated to the Run position	1. Check to make sure that the choke has been elevated to the run position. If not elevate the choke to the run position
	2. Has the generator got old fuel in it, that has been sitting still for a while	2. If so empty out the old fuel and replace it with new fresh fuel
Appliance is not working or stops working	1. Unplug the appliance from the generator and check for defect	1. If appliance has a defect follow the instructions as per the operation/owners manual

Troubleshooting cont.		
DC circuit breaker continually tripping	1. Overload	1. Reduce load
	2. Faulty cords or equipment	2. Check for damaged, bare, or frayed wires on equipment. Replace.
	3. Incorrect cables used	3. Check to make sure you are using the DC cables supplied with the actual generator. Using the incorrect cables could result in the crossing over of polarity. Only use the supplied DC cables with the actual generator.
	4. Mixed polarity	4. Check to make sure that the DC cables are connected to the correct battery polarity terminals. That is positive (+) to positive (+) and negative (-) to negative (-)
Generator overheating	1. Generator overloaded	1. Reduce load
	2. Insufficient ventilation	2. Move to adequate supply of fresh air

Generator stops	1. Generator may have fallen over	1. Check to make sure that the generator is in it's correct upright position. If not take corrective action to put it in the upright position
	2. Generator may have ran out of oil	2. Check to make sure that the generator has oil in it. If not take corrective action to top up the oil tank
	3. Generator may have ran out of Fuel	3. Check to make sure that the generator has fuel in it. If not take corrective action to top up the fuel tank
	4. Generator may not be correctly ventilated with free flowing air	4. Check and make sure that the generator is located in a appropriately ventilated environment. If not relocate the generator to a well-ventilated location.
	5. Generator fuel cap breather set on the closed position	5. Check that the generator fuel cap has the breather located switch located on the "on" position, allowing air to mix with the fuel. If the breather cap is located in the "off" position rotate switch on the cap to the "on" position.
	6. Generator air filter may need cleaning	6. Remove the air filter. Check to make sure that the air filter is clean. If required clean, dry and re-install the air filter.
	7. Generator fuel filter may be blocked	7. The internal in-line filter may be blocked. Contact your service agent for a service/replacement of the fuel filter.